

The French Monk, the Quiet Swede, and the Golden Section

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ABSTRACT

The Golden Section is a geometric ratio often touted for its aesthetically perfect proportions and its use as a design blueprint found in both nature and in iconic works of architecture throughout history. The Parthenon is often cited as the prototype par excellence of Golden Section architecture, though such assertions are not supported by empirical studies. Among twentieth century architects it is most commonly associated with Le Corbusier and his Modulor system. However, two of his lesser known contemporaries - Dom Paul Bellot, a Benedictine monk-architect, and Sigurd Lewerentz, an enigmatic Swede - also created works in which the Golden Section was applied, but with adjustments and in combination with other dimensions as part of unified systems of proportion. With much less fanfare, they show how the Golden Section can be applied in brick and mortar, but also reveal the limits of this divine proportion.

Keywords: Sigurd Lewerentz; Dom Paul Bellot; twentieth century architecture; chapels; The Parthenon; golden section / golden number / golden mean; proportion; proportional analysis; proportional systems; ratio; sequences

INTRODUCTION

The Chapel of the Resurrection, completed in 1925 by Swedish architect Sigurd Lewerentz, is located in the Woodland Cemetery, a UNESCO World Heritage Site in southern Stockholm. Its main hall, where funeral services are held, is a rectangular box with white plaster walls featuring minimally expressed pilasters, a window along the south wall, a triple-height ceiling with exposed roof beams, and mosaic tile floor (Fig. 1).



Figure 1. Chapel of the Resurrection: photographer unknown. (Source: ArkDes)

It is a column free space enclosed by end walls 7 meters (23 feet) long horizontally and 11.3 meters (37 feet) tall and side walls, also 11.3 meters (37 feet) tall, that are 18.3 meters (60 feet) long horizontally. Those dimensions, as much if not more so than the materials and architectural details, define the character of the room. The architect chose these proportions to align with the Golden Section, a ratio found in geometry, nature, and works of art and architecture, with a design pedigree associated with monumental buildings of Classical Greece and other early civilizations [1-2].

As this building so amply demonstrates, proportion is a key element of architecture. The relationship of parts to each other and to the whole -- whether the dimensions of a room or the overall arrangement of a building -- affects how we judge beauty and function. It is something architects and critics come back to again and again.

Consider Ada Louise Huxtable [3] and her review of another building with Golden Section derived dimensions, the Convent La Tourette by Le Corbusier. 'The building's primitive, almost brutal appearance belies a sophisticated use of well-proportioned parts, artfully arranged'.

Whether a result of nature or nurture, how we feel about a building is often an instinctive sensation; one either likes the shape of a building, or feels that something is astray, out of balance. It seems like an irreducible quality, something we cannot easily put into words, but we know good proportion when we see it. Although it may seem qualitative, of course proportions can be defined quantitatively. But what makes for a good set of proportions, architecturally speaking? How does one find a system that can be applied to a wide range of circumstances or perhaps any situation? Is it science or art, or some fusion of the two?

This is where the Golden Section comes in. In many texts on architecture and aesthetics it is mentioned reverently, albeit usually briefly, as a system of building proportion that produces beautiful forms. Although examples abound from the nineteenth and twentieth centuries, two instances from this century illustrate that it remains a live issue. A 2018 architectural journal article [4] asserts that ‘shapes and designs based on the Golden Section have been considered aesthetically pleasing for thousands of years’ (p. 157) while a 2007 newspaper article penned by an architect [5] refers to the ‘Golden Section -- the basis of a proportional system that ancient Greeks used throughout their architecture’. It has many positive associations, from the Parthenon (mentioned by both of the articles cited here) and other masterpieces of antiquity, to the works of Le Corbusier [6] and Steven Holl [7]. Le Corbusier famously extolled how throughout history:

[humankind] has discovered rhythms, rhythms apparent to the eye and clear in their relations with one another. They resound in man by an organic inevitability, the same fine inevitability which causes the tracing of the Golden Section by children, old men, savages and the learned (p. 68).

Le Corbusier and his links to the Golden Section have been extensively documented and analyzed. He developed a system of architectural proportion based on the dimensions of the Golden Section and the human body called Le Modulor; the name is a portmanteau of module and or (French for gold) [8].¹ Related

¹ Frings [22] disputes the characterization of the Modulor as a system, noting it has many deficiencies such that it should be called ‘a catalogue of irregular measures.’

to this, he subscribed to a centuries-old theory that the human body conforms to the Golden Section. Among other buildings, he employed Le Modulor at the aforementioned Convent La Tourette.

DEFINITION AND METHODOLOGY

But, what exactly is the Golden Section, how is it used in architecture, and by whom? Beyond Le Corbusier, dig deeper and one finds references to it in studies of other twentieth century architects, including Lewerentz and Dom Paul Bellot. While both have a devoted following, they are relatively unsung. Each produced buildings that are interesting and original and they share several traits that distinguish them from many of their peers, including an emphasis on the Golden Section. Each architect’s connection to this concept has received some attention, but they have not been considered together.

This article seeks, in part, to redress that imbalance. What follows is part literature review, part comparative study of Dom Bellot and Lewerentz and in particular a chapel designed by each, and part original analysis - connecting some dots from various sources to provide insights into the use of the Golden Section by two practitioners committed to its use. For historical perspective, particular attention is given to the Parthenon in light of its putative status as Golden Section template par excellence.

To start with nomenclature, the Golden Section has many names in English, including Golden Ratio, Golden Mean, Golden Proportion, the Division in Extreme and Mean Ratio (as named by Euclid), and the Divine Proportion (as named by Luca Pacioli in the sixteenth century). However, Golden Section is often used in architectural literature and I will stick with it here. Some sources, though not all, capitalize the phrase; here it is capitalized in all instances for consistency.

Moving next to a technical definition and then onto illustrations, the Golden Section is a ratio of two lines of unequal length with a relationship of 1 to 1.618 (1:1.618) and is represented by the Greek letter phi (Φ or ϕ). Similar to pi (π), it is a mathematical constant and an irrational number, meaning that it cannot be reduced to a fraction as it continues to an infinite number of decimal places. It is typically written to three decimal places just as π is often expressed as 3.14. It is also defined as

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$(1+\sqrt{5})/2$. The Golden Section is also mathematically comparable to the Fibonacci Sequence, in which each whole number is the sum of the two that precede it. As Fibonacci progresses [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...], the ratio of one number to the next approximates the Golden Section, which at five decimal places is 1.61803.² For example $21:34 = 1:1.61904$ and $233:377 = 1:1.61802$; it is not until $377:610$ that it matches 1.61803 at five decimal places.

As for the Golden Section, it recurs throughout geometry and, importantly for architecture and design, it is infinitely scalable. If there are two unequal lines, A and B, and their lengths form the Golden Section, such that $A:B = 1:\Phi$, then B will also have the same ratio with the sum of the two lines combined. In other words $A:B = B:(A+B) = 1:\Phi$. And this continues ad infinitum, so that $(A+B):(A+B+B) = 1:\Phi$, a relationship unique to this ratio [9].

Golden Section lines can be used to form geometric shapes, most commonly a Golden Rectangle. Another way of expressing the Golden Rectangle relationship is that each Golden Rectangle contains a square and a scaled-down perpendicular reciprocal of itself. In an A:B (1: Φ) Golden Rectangle the square will have dimensions of A:A (1:1).

The remainder of the Golden Rectangle will have a short dimension of $\Phi-1$, i.e., 0.618, which is often represented by lower-case phi (ϕ) and a long dimension of 1; thus $\phi:1 = 1:\Phi$ (Fig. 2). For its application in architecture and design, Golden Section lines can form other shapes besides rectangles, such as triangles, spirals, and three-dimensional volumes.

For example, there are at least two definitions of a Golden Triangle. One is an isosceles triangle in which each of the longer equilateral sides form a Golden Section with the shorter base [9]. This type of Golden Triangle is found in each of the five points of a pentagram [10].

Another Golden Triangle, found in Dom Bellot's designs, is a right triangle in which the short and long base legs have a 1: Φ ratio [11]. That there can be more than one Golden Triangle illustrates the versatility of this concept.

² This progression toward Φ is not unique to Fibonacci; it is true of any whole number series constructed in the same manner, though with some 'lag' [42].

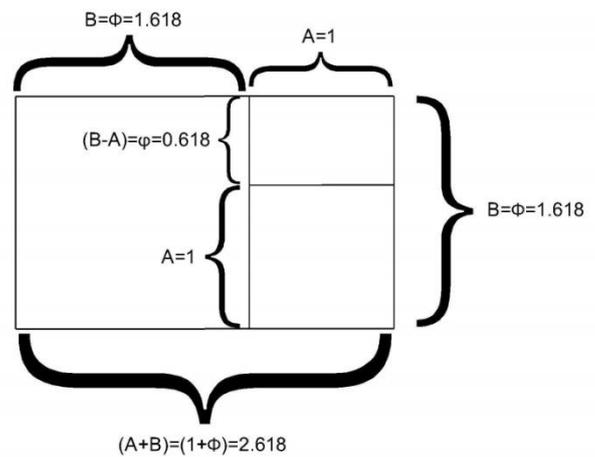


Figure 2. Golden Rectangles (Source: drawing by the author)

CONTEXT

After the foregoing, the question arises: so what? Just because a ratio is very important geometrically, why should it serve as the basis for building proportion? If geometry should be the basis for proportion, then why not create a system based on π ? It is also important for geometry. What's so special about Φ ?

The three-part answer generally given is that the Golden Section, though it is defined geometrically, is widely found throughout nature (e.g., in the dimensions of snowflakes and crystals), is the most aesthetically pleasing proportion, and has a long history of use by enlightened designers. This explicit formulation was popularized by Adolf Zeising [12] starting in 1854. This has particular resonance for architecture because it offers a way to reconcile the tensions between function and beauty. Nature and aesthetics can be considered theoretical bases for using the Golden Section in architecture.

There are vigorous scholarly debates on the science underpinning these points, but the salient point for this historical analysis is that many architects, artists, and other designers have accepted a priori that the Golden Section is an aesthetically superior proportion and a functional system used to order the universe.

The Golden Section in History: The Parthenon

The contention that the Golden Section has been used in iconic buildings of ancient and classical civilizations, the Renaissance, and Modern times can be seen as evidence of its special natural and aesthetic qualities. The most celebrated example is the Parthenon, which, it is

widely claimed, was built based on Golden Rectangles at varying scales. Along the same lines, in the early twentieth century mathematician Mark Barr named the Golden Section phi at least partially in honor of Phidias, who designed sculptures at the Parthenon [13].

Patrice Foutakis [14] tested this by examining dimensions measured by archaeological services and found that the key ratio for the proportions of the Parthenon is 1:2.25. This is consistent with earlier studies, with the ratio sometimes expressed in its whole number equivalent, 4:9 [15-18]. More broadly, Foutakis [14] found that ‘the golden ratio was totally absent from Greek architecture of the classical fifth century BC [when the Parthenon was built], and only very rarely employed in the third and the second centuries BC’ (p. 71), an assessment shared by architect Richard Padovan [19], who literally wrote the book on proportion (p. 304).

Architectural historian Hanno-Walter Kruft [20] likewise debunks another purported historical connection, noting that ‘contrary to what is generally believed, during the Renaissance this proportional relationship [the Golden Section] played a subordinate role, and preference was given to integral arithmetical ratios’ (p. 63). Furthermore, assertions concerning the use of the Golden Section in the Great Pyramid of Giza also have been discredited [13, 16]. The thesis of Golden Section superiority started with Zeising in the nineteenth century, when he and others who followed retroactively ascribed it to Egyptians, Greeks, et al [21, 22]. Thus, during the first half of the twentieth century, when the likes of Le Corbusier, Dom Bellot, and Lewerentz became enthralled with the Golden Section, it was a concept legitimized by science, religion, history, and art [23]. The result [24]: ‘a veritable mania for the Golden Section’ (p. 10). The investigations disproving the historical narrative only came later.

Dom Paul Bellot (1876-1944)

While Dom Paul Bellot (Fig. 3) is not widely known, in some circles he is celebrated for originating his own Style Dom Bellot (or Dombellotisme) for churches and other religious buildings that was emulated by several other architects during the early to mid twentieth century as an alternative to Modernist design.³

³ Another legacy of Dom Bellot is that he is the namesake of at least three streets, including Dom Paul Bellotweg in Eindhoven, avenue Dom Bellot in Montreal, and rue Dom-Bellot in Quebec City.

Dom Bellot’s work is noted [25] for ‘featuring parabolic arches, polychrome brickwork, and powerful geometries’ (p. 80) and ‘he influenced a generation of architects in [Quebec] and elsewhere with his unique approach to design and form, proportion, light and materials’ [26]. Born 7 July 1876 in Paris, Paul Louis Denis Bellot was the son of an architect-surveyor and studied architecture at the École de Beaux-Arts in Paris from 1894 to 1901. Instead of pursuing a conventional career as would befit a graduate of the world’s leading design academy, in 1902 he entered a Benedictine monastery and made his monastic vows in 1904, thus receiving the title Dom. Due to church-state conflicts, the Order of St. Benedict left France in 1901 and was based on the Isle of Wight.



Figure 3. Dom Paul Bellot: photographer Aegidius Fauteux (Source: Archives de la Ville de Montréal. Document code: BM001-05-P0139)

Although he did not initially engage in architectural activities, his religious order needed someone to design and oversee new buildings on the Isle of Wight and in the Netherlands and as a result his professional and religious paths converged [27]. From 1906 until his death on 5 July 1944 in Quebec, he practiced as a monk-architect designing churches, monasteries, religious schools, and related buildings in several European countries, Argentina, and later in Canada. His works have received much recognition, such as the Quarr Abbey on the Isle of Wight, which is a Grade I Listed Building by English Heritage [28] due to its ‘exceptional innovation, originality and spatial quality’.

He did not follow the then emerging Modernist movement and in fact Bellot [29] attacked Le Corbusier, arguing that when one views his work ‘we feel an interior emptiness, a kind of anguish, as if we looked into an extinct crater of

the Moon' (p. 31). However, Dom Bellot was not a conventional traditionalist either; he sought to integrate historical approaches with new innovations [30].

A system of proportion rooted in the Golden Section was a key element in his philosophy and oeuvre [24, 29, 31-32]. In 1934, at the invitation of architectural protégés, he delivered a series of lectures in Quebec which were published posthumously in book form as *Propos d'un Bâtitseur du Bon Dieu*. In one of his talks, Dom Bellot [29] recalls that, as he was embarking on his early design work for the Benedictine order, he discovered in the writings and designs of earlier monk-architects 'a certain mysterious Golden Section, a magic wand which could transform commonplace art into a masterpiece' (p. 109). What others framed in more purely scientific terms, he poses with a theological angle [29]. 'Everything around us is governed by the law of numbers. God created everything with weight and measure; and beauty, in a certain aspect, is only a proportionate matter' (p. 103). Consider the similarities and differences with Le Corbusier [33], who argues that 'nature is ruled by mathematics, and the masterpieces of art are in consonance with nature' (p. 29). Dom Bellot [29] saw the creation of beauty as a sacred purpose. 'Shouldn't we align ourselves', he asks, 'with the vision of the Creator; and will we not be so charitable as to offend, with soulless works, the eyes of our contemporaries and their children?' (p. 103).

But, these quotes, exuberantly rhetorical though they are, should not be considered in isolation. Balancing his fervor with reason and introspection, he also observes [29] that 'those who know how to use [the Golden Section] are unanimous on the point: it is staggering, intoxicating! But, in order to master the technique of this instrument, which can create all kinds of harmonious results, one has to understand it and also be a little accustomed to it' (p. 110). He explains [29] that 'proportion is the introduction into things of a common measure. It can be geometric or mathematical, but always in a logical and spiritual or intellectual way' (p. 103). In another passage [29] he cautions that 'art does not brutally apply mathematics, and it takes a very delicate study to establish a system of proportions in any building' (p. 102).

There is evidence of such a delicate approach in his built works. Architect Liz Dewitte [11], critically examined one of his buildings, the

chapel of the former Augustinian College, a listed building in Eindhoven, The Netherlands (Fig. 4). She reviewed drawings, recorded measurements, and presented a series of calculations. In Dewitte's words [11]:

Following a careful study of Dom Bellot texts and drawings we can conclude that he invented and used his own proportional system to create architectural spaces. Starting from very simple shapes he successfully links all the elements into one, harmonious whole. The shapes he employs the most are the Golden Triangle, the Pythagorean triangle, the square, and the so-called Egyptian triangle (p. 463).



Figure 4. Chapel of the former Augustinian College, Eindhoven, The Netherlands, 2009: photographer Mark Bergsma (Source: Wikimedia Commons)

She adds [11], 'anchored in the Golden Section, his system was a way to achieve beauty and order of the highest, holiest and most harmonious order' (p. 476). She concludes [11]: 'he used this system to build up harmonious proportions so that the whole unit could be divided in smaller ratios for the same type. In this way he wanted to create a true and pure kind of beauty of the type that is seen in nature. Dom Bellot saw his system as a means to express his faith in the metaphysical world' (p. 484).

In summary, based on his words and Dewitte's investigation, it is clear that Dom Bellot used the Golden Section, but not in a cookie-cutter dogmatic manner that can be curtly illustrated in a simple diagram inscribing Golden Rectangles or Triangles on images of his buildings.

Sigurd Lewerentz

Born in northern Sweden on 29 July 1885, Lewerentz was the son of a glass factory

manager who first studied engineering and then architecture before embarking on a career in the 1910s (Fig. 5). He was a practicing Lutheran whose projects included offices, residences, churches, and cemeteries [34].

To a remarkable degree, Dom Bellot and Lewerentz were mirror twins, very much alike in some respects but in others the reverse of each other. Whether they were aware of each other's work is unclear to me, but they each found a way to stand apart from the general flow of twentieth century architecture. As with Dom Bellot, Lewerentz was known for attention to detail, application of new technologies, designs that neither rejected nor simply copied historic precedents, and an expressive brick style.

While the Frenchman was nicknamed 'un poète de la brique (a brick poet)' [35], the Swede's St. Mark's church was hailed [36] as 'a unique poem in brick and wood' (p. 90) by his fellow architect Kay Fisker.⁴ One notable difference is that Lewerentz rarely wrote or spoke publicly and his few writings mostly consisted of technical descriptions of his works. While Dom Bellot's favorite saying [31] reportedly was 'my thought is the drawing' (p. 199), Lewerentz seems to have shared that sentiment but did not say it (as far as I am aware).⁵

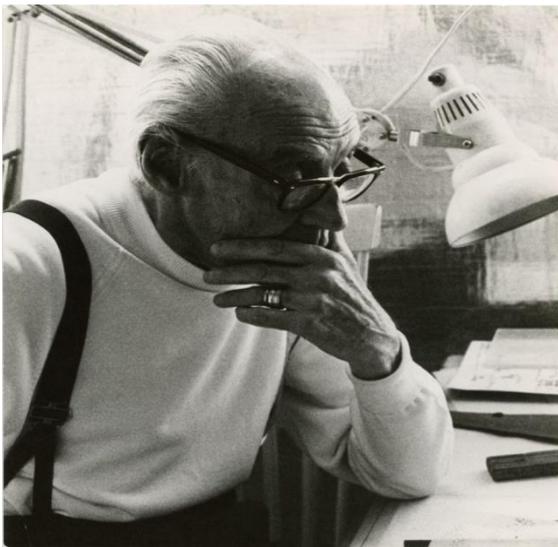


Figure 5. Sigurd Lewerentz at desk, 1969:
photographer K.-E. Olsson-Snoogeröd (Source:
ArkDes)

⁴ Fisker's quote originally appeared in *Arkitektur*, 1963. Translation by Marianne Kold-Sharp.

⁵ The Dom Bellot quote comes from an article in Dutch by Dom Van der Laan, but is presented in the original French 'ma pensée est le dessin'; translation by the author.

Although he did not address it publicly, according to his biographer, Janne Ahlin [1], 'something which fascinated him throughout his life was the Golden Section. Within his immediate family, he could passionately describe its qualities' (p. 10). This is evident in Lewerentz's built works. Returning to the Chapel of the Resurrection, which is generally considered his first masterpiece, both the end and side walls are Golden Rectangles, with 11.3 meters used as the long dimension in the smaller Golden Rectangle end walls and the shorter dimension in the larger Golden Rectangle side walls. The 18.3-meter longer dimension in the larger Golden Rectangle is the sum of the two sides in the smaller Golden Rectangle.

This is a textbook illustration of the scalability of the Golden Section, its ability to build up or down based on its parts while maintaining the $1:\Phi$ ratio. However, the resulting footprint formed by these vertical planes is an elongated rectangle 7 meters wide by 18.3 meters long, a very non-Golden Ratio of 1:2.614. Swedish architect Hans Nordenström, who views the chapel as a unified work of numerical relationships, overcomes this by redefining the horizontal dimensions [1]: 'the floor surface can be described as the end walls' rectangle plus a square' (p. 79).⁶ Although true, as the floor can be subdivided into a 7-meter by 11.3-meter Golden Rectangle and a 7-meter square, it is a physically and visually cohesive plane one experiences as an integrated whole. Matila Ghyka [37], who wrote extensively on the Golden Section, argues that the square and reciprocal Golden Rectangle comprising a Golden Rectangle 'are subconsciously suggested to the eye' (p. 10) and here Nordenström is extending that theoretical construct further by adding an extra square to the end of a Golden Rectangle. Whether such relationships are perceived, consciously or subconsciously, and if so are considered harmonious by the brain remains in the realm of theory. Ahlin [1] notes that Lewerentz was 'somewhat irritated by a certain overclarification' (p.78) by Nordenström and one wonders if this is such a case.

My interpretation is that there are trade-offs when applying a system of proportion; all the pieces need to fit together. If Lewerentz chose

⁶ Nordenström's commentary on the Chapel of the Resurrection originally appeared in Swedish as 'Uppståndelsekapellet på Skogskyrkogården' in *HUS. 27 Arkitekters val ur Svensk Byggnadskonst*. 1965. Ahrbom, Nils, et al. Stockholm: Bonnier.

the Golden Section dimensions because he believed that they create a harmonious relationship that was visually pleasing for how the chapel is experienced vertically, he also accepted that the resulting horizontal plane had a very different shape but one that served other purposes. For example, architectural historian Carlotta Torricelli [38] interprets this space as ‘being shaped like a compressed Roman basilica’ in which the purpose of the pilasters on the side walls ‘is to represent or to evoke the memory of the side aisles of the basilica structure, the idea of a tripartite division’ (p. 76), but in which only the central portion is physically realized.

On a more intimate scale, Nordenström also identified smaller Golden Section proportions in the Chapel of the Resurrection [1]. ‘The wall surfaces are divided by a hint of framing. The end wall is divided into a lower square and an upper, horizontal ϕ -rectangle. Within each of the wall surfaces pairs of pilasters enclose a smaller surface, in the lower a vertical ϕ -rectangle and in the upper, a square’ (p. 81).

Drawings and other records from his projects demonstrate that Lewerentz was a meticulous, iterative designer who explored many options before selecting his solution. From 1921 to 1924 he prepared several different versions of the chapel before arriving at the final form [39]. I think it is clear that he did not “box” himself into the design for this building due to a dogmatic allegiance to the Golden Section. Torricelli’s view [38] is that: ‘in the design we can recognize a Greek derived canon and system of proportions based on the square and the ratios of the Golden Section. In the application of this regulating template, Lewerentz introduces a number of variations, omissions, reiterations which render the project more complex, where classical rules are stretched to the paradoxical’ (p. 76). In a similar vein, Hakon Ahlberg [36], one of his peers, writes of Lewerentz, ‘his buildings are notable for their proportions and sensitive handling of materials, but otherwise they are an objective response to the task in hand’ (p. 83). Lewerentz’s silence on design matters is an invitation to interpretation. He passed away on 29 December 1975, taking his secrets with him, and was interred at Malmo Eastern Cemetery, which he designed.

CONCLUSION

Dom Bellot and Lewerentz found the Golden Section pleasing and accepted its value as a superior proportion. Yet, in practice, they

modified it and applied it in combination with other proportions in their search for transcendent architecture. For example, Ahlin [1] notes that Lewerentz ‘readily used the [Golden Section] principle as an aid in proportioning his own buildings, primarily in the rational form we know as the Fibonacci Series’ (p. 10). The Fibonacci ratio of 5:8, at 1:1.6, is relatively close to Φ for application in architecture since rounded units of measurements, whether feet and inches or meters and centimeters, are often preferred in design and construction. A room that is 10 feet wide by 16 feet long will be nearly the same as one 10 feet wide by 16.18 feet (16 feet, 2 5/32 inches) and much more likely to be built. This is a deviation from the geometric ideal of about 1 percent. Padovan [19] posits that ‘what is significant, when one experiences the proportions of a building, is not a particular, precise ratio that happens to recur in a few isolated instances, but a system of ordered relations connecting each part to the whole’ (p. 94). I can imagine Dom Bellot saying “amen” and Lewerentz stoically nodding his head in agreement.

It is worth noting that among their contemporaries, not everyone was drinking the Golden Section Kool-Aid. In the 1920s, a young Dutch monk-architect named Dom Hans Van der Laan worked alongside Dom Bellot. As Dom Van der Laan later recalled [40], ‘The secret of [Dom Bellot’s] art lay in the Golden Section ... when he tried to convince me of its supreme value, I failed to see what it had to do with architecture and it seemed to me just another arbitrary mathematical formula’ (p. 85).⁷ However, one conviction Dom Van der Laan shared with Dom Bellot was the importance of proportion. He developed his own system called the plastic number which he saw, in the words of his biographer, Padovan [40], ‘as something produced by the intellect and imposed by it upon, and in reaction to, nature’ (p. 241) and therefore, in contrast to the philosophy underpinning the Golden Section, not imbued with natural or divine origins.

There are many reasons to be skeptical about the Golden Section as architecture’s one true path to proportional perfection. The empirical studies of the Parthenon and other architectural masterpieces refute the historical argument and

⁷ This quote by Dom Van der Laan comes from a letter he wrote to Padovan, dated 29 May 1984.

implicitly undermine the theoretical foundations. The Golden Section's unique geometric qualities are intriguing, but superfluous as a justification for its use in architecture given that in practice it is often the Fibonacci rational form that is used.

There is still a special mathematical character to a system of proportion that conforms to Fibonacci, though not the one indicated when it is referred to as the Golden Section. What we can learn from Dom Bellot and Lewerentz is that there is a middle ground on the use of the Golden Section in architecture. With little fanfare, they offer proof positive that the Golden Section can add value to building design.

Golden Section rhetoric is hyperbolic and the historic narrative is apocryphal, but that need not delegitimize the utility of Golden Section proportions entirely. In a 2014 interview with *The Globe and Mail*, Peter de Hoog [41], a Canadian architect who uses the Golden Section, shared a nuanced view of its application. 'I understand the Golden Section as a tool. Someone with no talent will never produce something good by using it. To make poetry, you have to know more than grammar, but you have to know grammar nonetheless'. Dom Bellot and Lewerentz, the brick poets, demonstrate the possibilities and limitations of the Golden Section.

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